

General Aviation

Requirements

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Requirement

Status Category: Completed

Sponsor Organization: AFS

Sponsor POC: Tom Glista

Keywords: General Aviation Pilots (GA), Performance (meas/imprv),
Training-Other

Title: General Aviation Training

Research Statement:

This requirement outlines the need for a thorough review of general aviation training. Not only is research required to identify potential near-term training improvements that could immediately positive effect a reduction of general aviation accidents but also the research should address training implications of future GA systems such as SATS.

Background:

This research initiative will address General Aviation (GA) pilot training and required improvements that support increased pilot skills and a resultant reduced accident rate. The premise of the research is that improved airman training represents a near-term, cost-effective and meaningful method of intervention into the causative chain of events that have been identified as leading causes of GA accidents. It also suggests that new aircraft systems and capabilities providing traffic avoidance, direct routing, weather cockpit displays and other improved technologies will not be introduced in sufficient quantities in new aircraft or as retrofits to the current GA fleet in time to significantly reduce the accident rate by the year 2007. The research will directly support the AVR mission as articulated in their FY1999 Performance Plan as well as those issues addressed by the Safer Skies program. The research will also directly contribute to the FAA Strategic Plan and FY 2000 Annual Performance Plan whereby a reduction in the aviation accident rate has been identified as a major goal.

Specifically, the training research will be designed to accomplish the following:

- Reduce GA accident rates through improved pilot training, by focusing on areas identified as known, leading, causative accident factors (Safer Skies)
- Ensure GA pilots are trained to fully utilize the capabilities of new aircraft systems as they retrofit and transition to those new systems
- Ensure the development of new GA aircraft systems is

conducted in consideration of the human factors and training issues involved

- Support the development of appropriate airman evaluation and certification methods in consideration of new and emerging technologies.
- Support on-going FAA initiatives including Safer Flight, Safe Flight 21 and other programs where reduced GA accident rates are included in program goals and objectives
- Reduce the time and cost of ab initio airman certification while extending the amount of instrument training provided to all pilot applicants

This research initiative will leverage the work previously accomplished under the NASA / FAA Advanced General Aviation Transport Experiment (AGATE) program. It will address improved training technologies and techniques in today's (2000) GA operational environment as well as the probable attributes and characteristics of GA operations in the mid-term (2007) and far term (2024) where the new AGATE aircraft and the emerging Small Aircraft Transportation System (SATS) respectively will provide improved aircraft systems and NAS interface for improved flight safety. In addition, it supports the goals and objectives of the NASA Safety Program as it regards reduced GA accident rates. The research will focus initially on near-term training improvements where immediate positive effects on reducing the GA accident rate may accrue. This focus will include current aircraft systems and technologies, as well as current and projected pilot training methods, curriculum and airman evaluation practices. The emphasis here will be on the implementation of new training processes and methods that will reduce the GA accident rate without the introduction of new aircraft systems or technologies. This initial research is critical as the implementation and use of new aircraft systems will be an incremental effort until aircraft operating those systems represent a significant percentage of GA operations. Therefore, identifying and implementing near-term training and human factors improvements will be the best avenue in achieving any meaningful, near-term reduction in GA accident rates. We will specifically investigate new training in the areas of CFIT, weather, loss of control and pilot decision-making. Once a baseline of data is developed concerning today's GA training and operational environment, the research program will turn its attention to new aircraft systems identified for implementation in the AGATE aircraft including the Primary Flight Display (PFD), which includes the "Highway-In-The-Sky" virtual VFR system, the Multi-Functional Display (MFD), Single-Lever Power Control Systems and other increased capability. The research will identify the appropriate training and evaluation methods for these new systems to ensure full advantage is taken of their capability to reduce GA accident rates through improved pilot understanding and system familiarity. The research will additionally identify the training implications of the SATS system including the need to train pilots in the use of improved

NAS information sharing and system interfaces (NAS 4.0 or better), as well as the operation of new "smart" airports and aircraft systems. The identification, development and implementation of new, improved aircraft systems and technologies, as well as improved NAS system interfaces and support capabilities, will provide the basis for reduced GA accident rates. The effectiveness of these new systems however, and the ability to achieve reduced accident rates in today's GA operational environment, will only be realized if improvements and innovation in training methods and procedures accompanies the technical systems effort. Without such emphasis, the effectiveness of new systems will be severely reduced and near-term accident rates may continue at the same level for years to come.

Output:

Regulatory Link: